

What is claimed is:

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1. An apparatus for converting an analog image data into a digital image data in a CMOS image sensor including a pixel array having M(row line) $\times$ N(column line) color pixels, wherein the color pixels include a first color pixel for sensing a first color, a second color pixel for sensing a second color and a third pixel for sensing a third color, the apparatus comprising:

a) an analog reference voltage generating means for generating different analog reference voltages according to the color pixels, wherein the different analog reference voltage has different value and different decline rate;

b) a selecting means, in response to a select control signal, for selecting one of the corresponding analog reference voltages according to the color pixels; and

c) a comparing means for comparing the analog reference voltage and the analog image data to generate the digital image data corresponding to the color pixels,

whereby a conversion operation of the analog image data into the digital image data is differently carried out according to the color characteristic.

2. The apparatus as recited in claim 1, wherein the analog reference voltage generating means includes:

a first reference voltage generator for generating a first reference voltage with respect to the first color pixel;

a second reference voltage generator for generating a second reference voltage with respect to the second color pixel; and

a third reference voltage generator for generating a third reference voltage with respect to the third color pixel.

3. The apparatus as recited in claim 2, wherein the color pixels contained in the pixel array are arranged as a form of Bayer pattern, the Bayer pattern including:

the first color pixels and the second color pixels repeatedly arranged on odd row lines of the pixel array in this order;

and the second color pixels and the third color pixels repeatedly arranged on even row lines of the pixel array in this order.

4. The apparatus as recited in claim 3, wherein the selecting means includes:

a first selecting means, arranged on the odd column lines, for selecting one of the first reference voltage and the second reference voltage in response to the select control signal according to the color pixels; and

a second selecting means, arranged on the even column lines, for selecting one of the second reference voltage and third reference voltage in response to the select control signal according to the color pixels.

5. The apparatus as recited in claim 4, wherein the first color pixel is a red color pixel, the second color pixel is a green color pixel and the third color pixel is a blue color pixel.

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6. The apparatus as recited in claim 4, wherein the selecting means is a multiplexer.